GENERAL NOTES:

1. ALL WORK INVOLVED IN THE CONSTRUCTION, RELOCATION, REPAIR OF MUNICIPAL SERVICES FOR THE PROJECT SHALL BE TO THE SATISFACTION OF THE TOWN.
2. THE APPLICANT, APPLICANT'S REPRESENTATIVE, CONSULTANT, CONTRACTOR AND SUB CONTRACTORS ARE RESPONSIBLE TO ENSURE THAT THEIR DESIGN MATERIALS AND CONSTRUCTION PRACTICES CONFORM TO THE LATEST REGION, TOWN, MINISTRY OF ENVIRONMENT, TORONTO REGIONAL CONSERVATION AUTHORITY'S DEVELOPMENT STANDARDS, POLICIES, SPECIFICATIONS, MATERIALS, DESIGN CRITERIA AND GUIDELINES AS POSTED ON THEIR RESPECTIVE WEBSITES. IN THE ABSENSE OF REGION AND OR TOWN SPECIFICATIONS, THE ONTARIO PROVINCIAL STANDARD SPECIFICATIONS (OPSS) SHALL APPLY.
3. ALL WORKS SHALL BE COMPLETED IN ACCORDANCE WITH THE "OCCUPATIONAL HEALTH AND SAFETY ACT". THE GENERAL CONTRACTOR SHALL BE DEEMED TO BE THE CONSTRUCTOR AS DEEMED IN THE ACT.
4. THE LOCATION, DIMENSION AND ELEVATION OF ALL EXISTING SERVICES AND UTILITIES ARE TO BE VERIFIED IN THE FIELD PRIOR TO CONSTRUCTION, BY THE CONTRACTOR, AT THEIR EXPENSE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE RESTORATION AND THE REPAIR OF EXISTING UTILITIES DISTRUBED DURING CONSTRUCTION. ALL AREA'S BEYOND THE PLAN OF SUBDIVISION THAT ARE DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO THE SATISFACTION OF THE REGION OF PEEL AT THE CONTRACTOR'S EXPENSE.
5. ALL DIMENSIONS ARE IN METERS UNLESS SPECIFIED OTHERWISE.
6. ALL BOREHOLES SHOWN ON THE DRAWING ARE FOR INFORMATION ONLY. REFER TO THE GEOTECHNICAL REPORT.
7. ALL SUPPORT OF ALL UTILITIES SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION INCLUDING THE DECOMMISSIONING AND RECOMMISSIONING OF THE EXISTING LIGHT STANDARDS ALONG EXISTING SPEIRS GIFFEN AVENUE.
8. ALL BACKFILL FOR SEWERS, WATERMAINS AND UTILITIES ON THE ROAD ALLOWANCE MUST BE MECHANICALLY COMPACTED.
9. FIRE ROUTE SIGNS AND 3-WAY FIRE HYDRANTS SHALL BE ESTABLISHED TO THE SATISFACTION OF THE TOWN FIRE DEPARTMENT AND AT THE EXPENSE OF THE OWNER.
10. DRIVEWAY ENTRANCES AND DROP CURBS SHALL BE IN ACCORDANCE WITH THE TOWN OF CALEDON STANDARD DRAWING 402 AND THE MOST RECENT DRAWING STANDARD DRAWINGS FOR THIS PURPOSE (SEE SHEET 19).
11. BOULEVARD DRIVEWAY SLOPES SHOULD BE A MAXIMUM OF 6.0% AND A MINIMUM OF 2.0% WHEREVER POSSIBLE.
12. A MINIMUM CLEAR DISTANCE OF 1.5m IS REQUIRED BETWEEN THE EDGE OF THE DRIVEWAY AND A UTILITY STRUCTURE OR HYDRANT.
13. THE APPROVAL OF THIS PLAN DOES NOT EXEMPT THE OWNER'S BONDED CONTRACTOR FROM THE REQUIREMENTS TO OBTAIN THE VARIOUS PERMITS/APPROVALS NORMALLY REQUIRED TO COMPLETE A CONSTRUCTION PROJECT, SUCH AS, BUT NOT LIMITED TO THE FOLLOWING::
   - ROAD CUT PERMITS - SEWER PERMITS
   - APPROACH APPROVAL PERMITS - RELOCATION OF SERVICES
   - COMMITTEE OF ADJUSTMENT - ENCROACHMENT AGREEMENTS (IF REQUIRED)
14. 3 METER BY 3 METER VISIBILITY TRIANGLES IN WHICH THE MAXIMUM HEIGHT OF ANY OBJECTS OR MATURE VEGETATION IS NOT TO EXCEED A HEIGHT OF 0.60 METERS ABOVE THE CORRESPONDING PERPENDICULAR CENTERLINE ELEVATION OF THE ADJACENT STREET.
15. SILTATION CONTROL DEVICES SHALL BE INSTALLED PRIOR TO WORKS COMMENCING ON THE SITE AND SHALL BE MAINTAINED FOR THE DURATION OF CONSTRUCTION, TO THE SATISFACTION OF THE TOWN.
16. THE SUB-GRADE SOILS EXPOSED AFTER EXCAVATION SHALL BE INSPECTED AND CERTIFIED BY A QUALIFIED REGISTERED PROFESSIONAL SOILS ENGINEER AND A COPY OF THE REPORT SHALL BE FORWARDED TO THE TOWN OF CALEDON BUILDING DIVISION. WHERE THE FOOTING WILL BE SITUATED ON FILL MATERIAL, THE FOOTINGS SHALL BE DESIGNED AND APPROVED BY QUALIFIED REGISTERED PROFESSIONAL ENGINEER.
17. ALL PROPOSED SEWERS, THROUGHOUT THEIR LENGTH FROM THE MAIN SEWER TO THE BUILDING OR PLACE TO BE DRAINED IS TO BE LAID, AS NEARLY AS PRACTICAL, IN A STRAIGHT LINE IN A TRENCH AT A RIGHT ANGLE TO THE MAIN SEWER.

REGIONAL ROAD (DIXIE ROAD):

1. ALL CONSTRUCTION SIGNAGE MUST CONFORM TO MTO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
2. ASPHALT PRESERVATIVE SEALER SUCH AS RE-CLIMATEA OR APPROVED EQUIVALENT SHALL BE APPLIED AFTER THE ONE-YEAR MAINTENANCE PERIOD FOR THE TOP COARSE ASPHALT.
3. ALL TEMPORARY SIGNAGE AND TRAFFIC CONTROL MEASURES SHALL BE IN ACCORDANCE WITH REQUIREMENTS OF ONTARIO TRAFFIC MANUAL, BOOK 7 TEMPORARY CONDITION.
4. ACCESS TO EXISTING ENTRANCES AND SIDE STREETS SHALL BE MAINTAINED.
5. WORK OPERATIONS THAT REQUIRE DIVERTING TRAFFIC TO ONE LANE SUBJECT TO TIME RESTRICTIONS AND/OR NIGHT TIME OPERATIONS AS SPECIFIED IN ROAD OCCUPANCY PERMIT.
6. LOCATION OF EXISTING UTILITIES TO BE ESTABLISHED BY CONTRACTOR, ALL EXISTING UTILITY ELEVATIONS (SEWERS AND WATERMAIN) INCLUDING CENTRE LINE OF THE ROAD ELEVATIONS HAVE TO BE VERIFIED BY CONTRACTOR PRIOR TO COMMENCING ANY WORK ON SITE. ANY DISCREPANCIES SHALL BE REPORTED TO THE DESIGN ENGINEER AND THE REGION IMMEDIATELY.
7. THE CONTRACTOR(S) SHALL BE SOLELY RESPONSIBLE FOR LOCATING, SUPPORTING AND PROTECTING ALL UNDERGROUND AND OVERHEAD UTILITIES AND STRUCTURES EXISTING AT THE TIME OF CONSTRUCTION IN THE AREA OF HIS WORK, WHETHER SHOWN ON THE PLANS OR NOT, AND FOR ALL REPAIRS AND CONSEQUENCES RESULTING FROM DAMAGE TO SAME.
8. THE CONTRACTOR(S) SHALL BE SOLELY RESPONSIBLE TO GIVE 72 HOURS WRITTEN NOTICE TO UTILITY AUTHORITY PRIOR TO CROSSING SUCH UTILITIES FOR THE PURPOSE OF INSPECTION. THIS INSPECTION WILL BE FOR THE DURATION OF CONSTRUCTION WITH THE CONTRACTOR RESPONSIBLE FOR ALL COSTS ARISING FROM SUCH INSPECTIONS.
9. THE CONTRACTOR SHALL NOTIFY IN ADVANCE, AS REQUIRED, THE APPROPRIATE AUTHORITY HAVING JURISDICTION FOR THE ROAD PRIOR TO COMMENCING ANY WORK AND SHALL ACQUIRE AND SATISFY THE REQUIREMENTS OF APPROPRIATE PERMITS (FEES, INSPECTIONS, SIGNAGE, TRAFFIC, MAINTENANCE, DIVERSION, ETC.)
10. ALL EXISTING PAVEMENTS, CURBS, SIDEWALKS, AND BOULEVARDS AND OTHER AREAS DISTURBED BY THE WORK, TO BE REINSTATED EQUAL OR BETTER TO EXISTING AND TO THE SATISFACTION OF APPLICABLE AUTHORITY HAVING JURISDICTION OVER THE ROAD ALLOWANCE. EXISTING PAVEMENTS AND CURBS TO BE SAW-CUT TO PROVIDE A SMOOTH JOINT.

ROADWORKS:

1. GENERAL

1.1. CONSTRUCTION OF ROADWAYS & RELATED WORKS SHALL BE IN ACCORDANCE WITH TOWN OF CALEDON STANDARDS AND SPECIFICATIONS (LATEST EDITION).

1.2. FOLLOWING THE INSTALLATION OF SEWERS, ALL ROADWAYS SHALL BE ROUCH GRADED TO A SUBGRADE FOR THE INSTALLATION OF WATERMAINS AND UTILITIES.

2. CATCH BASINS

2.1. CATCH BASIN CONNECTIONS TO BE 250mm DIA. PVC PIPE, CSA 182.2, SDR-35 UNLESS OTHERWISE NOTED.

2.2. SINGLE / DOUBLE STREET CATCH BASINS AS PER OPSD 705.010 / 705.020 RESPECTIVELY WITH GOSS TRAPS. STREET CB GRATES AS PER OPSD 400.100

3. FINAL ROADWAYS

3.1. ROAD DESIGN TO ADHERE TO TOWN OF CALEDON STANDARD No: 211 (SEE DETAIL SEE DETAIL, SHEET 16) FOR A 26.0m INDUSTRIAL COLLECTOR (14.5m ROADWAY, 13.9m PAVEMENT).

3.2. MANHOLES AND CATCH BASINS SHALL BE INSTALLED FLUSH WITH THE BINDER COURSE ASPHALT (HL8).

3.3. MANHOLES TO BE ADJUSTED TO MATCH FINAL LIFT OF ASPHALT.

4. SIDEWALKS

4.1. CONCRETE CURB AND GUTTER AS PER OPSD 600.040 (SEE SHEET 20), Min. 30 MPa STRENGTH. A 50 mm KEY IS REQUIRED FOR ALL LOCATIONS.

4.2. 1.5m WIDE CONCRETE SIDEWALK AS PER OPSD 310.010 (SEE SHEET 20) (125mm THICKNESS, Min. 30 MPa STRENGTH WITH GRANULAR 'A' BASE AS REQUIRED TO PROVIDE A LEVELING COURSE FOR THE CONCRETE. AT DRIVEWAYS, CONCRETE DEPTH TO BE Min. 175mm.

4.3. WHEELCHAIR RAMPS REQUIRED AT ALL INTERSECTIONS AS PER OPSD 310.030 (SEE SHEET 20).

4.4. WHEELCHAIR ACCESS SHALL BE PROVIDED AT ALL DRIVEWAY INTERSECTIONS.

4.5. ASPHALT RAMPING SHALL BE PLACED TO SUIT THE WHEELCHAIR RAMPS IF SURFACE COURSE ASPHALT IS NOT INSTALLED AT THE SAME TIME. THESE RAMPS ARE TO BE REMOVED JUST PRIOR TO PLACEMENT OF SURFACE COURSE ASHPALT.

5. ROAD SUBDRAINS

5.1. 100mm FILTER WRAPPED CORRUGATED SLOTTED P.E. PLASTIC PIPE SUBDRAINS TO BE INSTALLED CONTINUOUSLY BELOW THE CURB AND GUTTER AND CONNECTED TO THE CB's. AS PER TOWN OF CALEDON STANDARD No. 219 (SEE STANDARD SHEET 19).

COMPACTION REQUIREMENTS

1. ALL COMPACTION REQUIREMENTS TO MEET THE REQUIREMENTS AS OUTLINED IN THE GEOTECHNICAL REPORT.
2. ALL BEDDING AND BACKFILL MATERIAL, ROAD SUB-GRADES AND GENERALLY ALL MATERIALS USED FOR LOT GRADING AND FILL SECTIONS, ETC., SHALL BE COMPACTED TO MIN. 95% SPMDD, WHILE THE UPPER ZONE (WITHIN 1.2m OF THE DESIGN SUBGRADE) SHOULD BE COMPACTED TO A MINIMUM OF 98% SPMDD.
3. THE PAVEMENT SUBGRADE SHOULD BE PROOF-ROLLED WITH A HEAVY RUBBER TIRE VEHICLE (SUCH AS A GRADER) AND ANY LOOSE, SOFT, WET OR UNSTABLE AREAS SHOULD BE SUB-EXCAVATED, AND BACKFILLED WITH CLEAN EARTH FILL MATERIAL PLACED IN 150mm LIFTS (OR LESS) AND COMPACTED TO A MINIMUM OF 100% SPMDD.
4. APSHALT MATERIALS SHALL BE ROLLED AND COMPACTED AS PER OPSS 310.
5. THE GRANULAR AND ASPHALT PAVEMENT MATERIALS AND THEIR PLACEMENT SHOULD CONFORM TO OPSS FORMS 310, 501, 1010, AND 1150 AND THE TOWN / REGION SPECIFICATIONS.
6. FOR ALL SEWERS AND WATERMAINS IN FILL SECTIONS, THE COMPACTION SHALL BE CERTIFIED BY A GEOTECHNICAL ENGINEER PRIOR TO LAYING OF PIPE.
7. WHERE DEWATERING MEASURES ARE TO BE IMPLEMENTED IN SECTIONS OF SEWER INSTALLATION, CLAY PLUGS SHOULD BE INSTALLED WITHIN GRANULAR BEDDING AND THE GRANULAR ZONES OF BACKFILL MATERIAL TO HELP PREVENT MIGRATION OF GROUND WATER ALONG THE RELATIVELY FREE DRAINING BEDDING MATERIAL.
8. CLAY PLUGS SHOULD BE PLACED IN TRENCHES AT 50m INTERVALS (OR LESS) ALONG THE FULL LENGTH OF THE WATER TRENCH, WHERE THE INVERT OF THE TRENCH IS BELOW THE WATER TABLE. THE PLUG SHOULD BE AT LEAST 1.0m THICK (MEASURED ALONG THE PIPE) AND SHOULD SHOULD COMPLETELY REPLACE THE BEDDING AND RELATIVELY PERVIOUS BACKFILL. THE CLAY PLUGS MUST BE COMPACTED TO A MINIMUM OF 95% SPMDD.

WATERMAINS:

1. GENERAL

1.1. CONSTRUCTION OF WATERMAINS AND PRIVATE SERVICES SHALL BE IN ACCORDANCE WITH THE REGION OF PEEL PUBLIC WORKS DESIGN, SPECIFICATIONS AND PROCEDURES MANUAL (LATEST EDITION) AND MINISTRY OF ENVIRONMENT (MOE) GUIDELINES (LATEST EDITION).

1.2. WHERE NON-METALLIC PIPE (PVC, CONCRETE PRESSURE PIPE) IS INSTALLED, A 12-GAUGE TWU STRANDED COPPER, LIGHT COLOURED PLASTIC COATED TRACER WIRE MUST BE INSTALLED WITH AND ALONG THE PIPE AND BROUGHT TO THE SURFACE AT EACH VALVE BOX/CHAMBER AND HYDRANT (AROUND PORT). TRACER WIRE IS TO BE ATTACHED TO THE PIPE AND OUTSIDE OF EACH VALVE BOX BY MEANS OF TAPE.

1.3. ALL FITTINGS SHALL BE RESTRAINED WHERE REQUIRED BY THE DESIGN OR BY THE REGION.

1.4. STAINLESS STEEL BOLTS AND NUTS ARE TO BE USED ON ALL FITTINGS AND JOINT RESTRAINTS.

1.5. CATHODIC PROTECTION IS REQUIRED ON ALL METALLIC FITTINGS, VALVES AND JOINT RESTRAINTS MUST BE WRAPPED END TO END WITH AN APPROVED CORROSION PROTECTION SYSTEM THAT INCLUDES PETROLATUM PRIMER (PASTE), PETROLATUM MOULDING, AND LOW TEMPERATURE PETROLATUM TAPE.

1.6. ALL SYSTEM COMPONENTS ARE TO BE EITHER TO THE REGION OF PEEL STANDARDS OR ONTARIO PROVINCIAL STANDARD DRAWING (OPSD). WHERE A REGION STANDARD EXISTS, IT SHALL BE USED IN PLACE OF THE OPSD STANDARD.

1.7. ALL LIVE TAPPING AND OPERATION OF EXISTING REGIONAL WATER VALVES SHALL BE ARRANGED THROUGH THE REGIONAL INSPECTOR ASSIGNED OR BY CONTACTING THE WATER DIVISION.

1.8. THE NEW WATERMAIN MUST BE ISOLATED FROM THE EXISTING WATERMAIN TO MAINTAIN PRESSURE IN THE NEW MAIN DURING INSTALLATION OF SERVICES. PROPER SIZE BY-PASS WITH THE APPROVED DIFFERENTIAL BACKFLOW PREVENTER TO BE INSTALLED AROUND THE CLOSED OPERATING VALVE.

1.9. ANY JOINT DEFLECTION SHALL BE 50% OF MANUFACTURER'S SPECIFICATIONS. PIPER BARREL DEFLECTION IS PROHIBITED WHEN USING PVC PIPE.

2. LOCATIONS

2.1. MINIMUM HORIZONTAL SEPARATION BETWEEN SEWERS AND WATERMAINS SHALL BE IN ACCORDANCE WITH TOWN OF CALEDON STANDARD No. 211 (SEE DETAIL, SHEET 16) AND HAVE A MINIMUM HORIZONTAL SEPERATION OF 2.5m, AS PER THE REGION OF PEEL. VERTICAL CLEARANCE BETWEEN SEWERS AND WATERMAINS THAT CROSS TO BE 500mm BETWEEN THE OUTSIDE OF THE WATERMAIN AND OUTSIDE OF THE SEWER AS PER MOE DESIGN CRITERIA.

2.2. THE MINIMUM LATERAL DISTANCE BETWEEN WATER SERVICES AND OTHER UTILITIES SHALL BE 1.2m.

3. DEPTH

3.1. ALL WATER SERVICES TO BE INSTALLED WITH A MINIMUM OF 2.4m COVER.

3.2. REFER TO STD DWG 1-5-8 FOR INSULATION REQUIREMENTS.

4. CROSSINGS

4.1. WHERE WATERMAINS CROSS UNDER A CREEK, THE MINIMUM COVER OVER THE WATERMAIN BELOW THE CREEK BOTTOM SHALL BE AS PER MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT AND CONSERVATION AUTHORITIES REQUIREMENTS. GENERALLY, WHERE WATERMAINS CROSS OVER UTILITIES, A 0.3m MINIMUM CLEARANCE SHALL BE PROVIDED. WHERE WATERMAINS CROSS UNDER UTILITIES, THE MINIMUM CLEARANCE SHALL BE 0.5m.

4.2. FOR A WATERMAIN CROSSING A SANITARY SEWER, WATERMAIN JOINTS ARE TO BE OFFSET A MINIMUM OF 2.5m HORIZONTALLY FROM THE CENTERLINE OF THE SANITARY SEWER.

5. CONSTRUCTION IN FILL AREAS

5.1. "NO WATERMAIN SHALL BE LAID ON FILL UNTIL DENSITY TEST REPORTS HAVE BEEN SUBMITTED TO AND APPROVED BY THE CONSULTANT OR REGION. FILL SHALL BE PLACED TO 0.6m MINIMUM ABOVE THE TOP OF WATERMAIN GRADES AND COMPACTED TO THE MINIMUM OF 100% STANDARD PROCTOR MAXIMUM DRY DENSITY (SPMDD) IN 0.3m LIFTS. TESTS SHALL BE TAKEN ALONG THE CENTERLINE OF THE PROPOSED WATERMAIN. ALL FITTINGS AND BRANCH VALVES IN FILL AREAS SHALL BE TIED WITH TIE RODS IN ADDITION TO CONCRETE BLOCKING ACCORDING TO THE FOLLOWING:

THRUST BLOCKING

CONCRETE THRUST BLOCKS SHALL BE INSTALLED AT ALL TEES, HORIZONTAL BENDS, HYDRANTS END OF MAINS AND CONNECTIONS 100mm TO 300mm DIAMETER AS PER REGIONAL STANDARDS. ALL 400mm DIAMETER WATERMAINS AND LARGER SHALL HAVE RESTAINED JOINTS. CALCULATIONS WILL BE REQUIRED FROM THE CONSULTANT TO DETERMINE THE M NUMBER OF JOINTS TO BE RESTRAINED BEYOND THE BEND.

ALL THRUST BLOCK LOCATIONS, WHERE COMPACTED FILL RATHER THAN UNDISTURBED GROUND EXISTS BEHIND THE THRUST BLOCK, THE FOLLOWING ADDITIONAL PROCEDURE SHALL BE FOLLOWED:

ALL SEGMENTS OF THE FITTING AND THE WATERMAIN AT THE THRUST BLOCK LOCATION SHALL BE TIED USING APPROVED RESTRAINING DEVIES INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS (TIE RODS AND CLAMPS SHALL BE PROTECTED USING CATHODIC PROTECTION AND CORROSION PREVENTION TAPE).

IMPORTED GRANULAR FILL (OPS GRANULAR "B" OR EQUIVALENT) IS TO BE USED BEHIND THE THRUST BLOCK AND FOR A MINIMUM DISTANCE OF 2m EACH SIDE OF THE THRUST BLOCK. THIS IMPORTED GRANULAR FILL SHALL BE COMPACTED TO A MINIMUM OS 100% STANDARD PROCTOR DENSITY. PRIOR TO CONSURCTING THE THRUST BLOCKS, THE CONTRACTOR SHALL OBTAIN WRITTEN APPROVAL FOR BACKFILL FROM A LICENSDED GEOTECHNICAL ENGINEER."

6. LINE VALVES

6.1. ALL VALVE BOXES TO BE SET TO SURFACE GRADE.

6.2. CORROSION PROTECTION TAPE AND ZINC ANODE CAPS SHALL BE APPLIED TO ALL VALVES LOCATED WITHIN CHAMBERS.

6.3. ALL VALVES 300mm AND SMALLER SHALL BE EQUIPPED WITH VALVE BOXES AND RESTRAINED.

6.4. A 12-GAUGE TWU STRANDED COPPER, LIGHT COLOURED PLASTIC COATED TRACER WIRE MUST BE INSTALLED WITH AND ALONG THE PIPE AND BROUGHT TO THE SURFACE AT EACH VALVE BOX/CHAMBER. TRACER WIRE IS TO BE ATTACHED TO THE PIPE OUTSIDE OF EACH VALVE BOX BY MEANS OF TAPE.

6.5. TRACER WIRE IS TO BE LOOPED THROUGH A HOLE IN THE SIDE OF THE VALVE BOX AS PER STD DWG 1-3-11 (SEE DETAIL SHEET 20).

6.6. ALL VALVE BOXES AND HYDRANTS ARE TO BE PROTECTED DURING CONSTRUCTION.

6.7. WATERTIGHT BOLT DOWN COVERS SHALL BE PROVIDED ON ALL CHAMBERS THAT ARE SUSCEPTIBLE TO FLOODING OR VANDALISM.

6.8. EACH CHAMBER WILL REQUIRE EXTENDED VENTS. THE ELEVATIONS OF THE VENTS SHALL BE ABOVE REGIONAL FLOOD LINES AS DETERMINED BY THE APPROPRIATE CONSERVATION AUTHORITY.

7. SERVICES

7.1. WATERMAIN SERVICES ARE TO BE INSTALLED PERPENDICULAR TO THE PROPOSED WATERMAIN AND STRAIGHT INTO THE BUILDING.

7.2. ALL SERVICES SHALL HAVE CURB STOPS AND BOXES INSTALLED AT THE STREET LINE, BE FLUSH WITH GRADE AND ACCESSIBLE AT ALL TIMES. REDUCING CURB STOPS SHALL NOT BE USED.

7.3. ALL WATER SERVICES SHALL HAVE THE SAME SIZE MAINSTOP AS THE SERVICE PIPE. MAINSTOPS ARE NOT REQUIRED ON WATER SERVICES OFF 50mm DIAMETER COPPER WATERMAINS.

7.4. SERVICE CONNECTIONS SHALL BE AS PER STD. DWG 1-8-6 (SEE DETAIL SHEET 17).

7.5. 50mm DIAMETER BLOW-OFFS ARE TO BE INSTALLED AT THE STREET LINE FOR ALL DEAD-ENDED LONG (GREATER THAN 10m) INDUSTRIAL WATER SERVICES, UNLESS OTHER METHODS ARE AVAILABLE FOR BLEEDING OFF, CHARGING AND FLUSHING OF THE SERVICE

7.6. ALL CONNECTIONS TO PVC PIPES TO BE MADE USING AN APPROVED WIDE BRANCH SERVICE SADDLE. DIRECT TAPPING IS NOT ALLOWED TO PVC WATERMAINS. TRACER WIRE TO BE INSTALLED AS PER STD. DWG. 1-7-1.

8. HYDRANTS

8.1. FIRE HYDRANTS TO BE INSTALLED AS PER REGION STD. DWG 1-6-1 (SEE SHEET 17) AND 1-6-2 WITH FLANGE SET BETWEEN 50mm AND 150mm ABOVE FINISHED GRADE.

8.2. ALL HYDRANTS SHALL HAVE 150mm BRANCH VALVES AND BOXES. HYDRANT BRANCH TEES FROM BE AS PER STD. DWG. 1-6-1 (SEE SHEET 17) AND 1-6-2.

8.3. ALL HYDRANTS SHALL HAVE MINIMUM 1.2m MINIMUM HORIZONTAL CLEARANCE FROM ALL UTILITIES AND STRUCTURES MEASURED FROM THE NEAREST POINT OF THE STRUCTURE. HYDRANTS NEAR DRIVEWAYS SHALL BE LOCATED A MINIMUM OF 1.25m CLEAR FROM THE PROJECTED GARAGE OR EDGE OF DRIVEWAY, WHICHEVER IS GREATER.

8.4. THE HYDRANT SAFETY BREAKAWAY FLANGE MUST BE LOCATED 50mm TO 150mm ABOVE THE FINISHED GRADE AND FIELD ADJUSTED IF REQUIRED.

9. THRUST BLOCKS

9.1. THRUST BLOCKING OF WATERMAIN TO BE INSTALLED AS PER STD. 1-5-4 (SEE SHEET 16), 1-5-5 (SEE SHEET 16), AND 1-5-7 (SEE SHEET 17).

10. AIR VALVES AND DRAIN VALVES

10.1. FOR WATERMAINS 400mm DIAMETER AND LARGER, PROVISION FOR AIR RELEASE AND DRAINAGE IS REQUIRED AT THE HIGH AND LOW POINTS RESPECTIVELY. THIS PROVISION MAY BE INCORPORATED WITH THE LINE VALVE CHAMBER OR IN SEPERATE CHAMBERS. REFER TO STD. DWG 1-3-5 (AIR VALVE)

11. BEDDING

11.1. BEDDING FOR WATERMAINS SHALL BE PER REGION STD. DWG. 1-5-1 (SEE SHEET 16) AND 1-5-2.

SANITARY SEWERS:

1. GENERAL

1.1. ALL SYSTEM COMPONENTS ARE TO BE EITHER TO THE REGION OF PEEL STANDARDS OR ONTARIO PROVINCIAL STANDARD DRAWING (OPSD). WHERE A REGION STANDARD EXISTS, IT SHALL BE USED IN PLACE OF THE OPSD STANDARD.

1.2. SANITARY SEWERS IN FILL SECTIONS, THE COMPACTION SHALL BE CERTIFIED BY A GEOTECHNICAL ENGINEER PRIOR TO LAYING OF PIPE.

1.3. PROPOSED SANITARY MAINLINE SEWER'S SHALL BE REINFORCED CONCRETE, CSA 257.2, 140-D.

1.4. FLOW VELOCITIES SHALL BE DETERMINED IN ACCORDANCE WITH GUIDELINES OUTLINED IN THE REGION OF PEEL PUBLIC WORKS DESIGN CRITERIA MANUAL.

1.5. DEFORMATION GAUGE TEST (PIG) IS REQUIRED ON ALL PIPE WORKS PRIOR TO MAINTENANCE AND ACCEPTANCE. ALL PIPE WORKS SHALL HAVE A VIDEO TAPING COMPLETE AS PART OF THE PRELIMINARY AND ASSUMPTION INSPECTIONS.

2. MAINTENANCE HOLES

2.1. FRAME AND COVERS SHALL BE AS PER REGION STD. DWG. 2-5-13 (SEE SHEET 17).

2.2. DROP MAINTENANCE HOLES SHALL BE PROVIDED WHERE THE DIFFERENCE IN INVERT ELEVATION IS GREATER THAN 0.90m. THE DROP PIPE SHALL BE ONE SIZE SMALLER THEN THE SEWER LINE (MINIMUM 250mm). (SEE STANDARD 2-5-26, SHEET 18).

2.3. ALL MAINTENANCE HOLES SHALL CONFORM TO THE CURRENT MANUFACTURER'S APPROVED PRODUCTS LIST, SANITARY SEWER AND APPERTENANCES, REGION OF PEEL STANDARD DRAWING 2-5-3, 2-5-4 (REFER TO STANDARDS ON SHEET 17).

2.3. WHERE DEPTH FROM INVERT TO TOP OF A MAINTENANCE HOLE EXCEEDS 5.0m, A SAFETY PLATFORM IS TO BE PROVIDED AS PER PEEL REGIONAL STANDARD 2-6-13 TO 2-6-15 (SEE STANDARD ON SHEET 18).

2.4. MAXIMUM SPACING OF MAINTENANCE HOLES SHALL BE 120m FOR SANITARY SEWERS UP TO 600mm IN SIZE. FOR SANITARY SEWERS GREATER THAN 600mm IN SIZE, THE MAXIMUM SPACING SHALL BE 170m.

3. SIZING

3.3. MAINLINE SANITARY SEWER PIPE SIZE SHALL BE MINIMUM 375mm DIAMETER.

3.4. MINIMUM HORIZONTAL SEPARATION BETWEEN SANITARY SEWERS AND STORM SEWERS SHALL BE 2.0m IF BOTH SEWERS ARE AT THE SAME RELATIVE ELEVATION. IF THE SEWER INVERTS VARY MORE THAN 1.0m, A MINIMUM HORIZONTAL SEPARATION OF 3.0m SHALL BE MAINTAINED.

3.5. MINIMUM HORIZONTAL SEPARATION BETWEEN SEWERS AND WATERMAINS SHALL BE 2.5m. VERTICAL CLEARANCE BETWEEN SEWERS AND WATERMAINS THAT CROSS TO BE 500mm BETWEEN THE OUTSIDE OF THE WATERMAIN AND OUTSIDE OF THE SEWER. THE LENGTH OF WATER PIPE SHOULD BE CENTERED AT THE POINT OF CROSSING SUCH THAT JOINTS IN THE WATERMAIN WILL BE EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE SEWER, CROSSING PERPENDICULAR IF POSSIBLE.

4. DEPTH

4.1. THE OBVERT OF THE SANITARY SEWER SHALL BE A MINIMUM OF 2.5m BELOW THE CENTRELINE OF ROAD.

4.2. IN ALL CASES, THE PROPOSED SANITARY SEWER SHALL BE INSTALLED AT SUFFICIENT DEPTH TO SERVICE LANDS EXTERNAL TO THE SITE AS DETERMINED BY THE REGION OF PEEL.

5. CREEK CROSSINGS

5.1. IN VALLEYS , THE SANITARY SEWER SHALL BE A MINIMUM 1.4m BELOW THE CREEK BOTTOM.

5.2. A PERMIT FROM THE TORONTO REGIONAL CONSERVATION AUTHORITY IS REQUIRED FOR A CREEK CROSSING.

6. SPECIAL DESIGN CONSIDERATIONS

6.1. SPECIAL CONSIDERATIONS FOR WATER TIGHT JOINTS IS TO BE APPLIED WHEN PIPE IS BURIED TO A DEPTH WHERE SIGNIFICANT HYDROSTATIC PRESSURES ARE ANTICIPATED.

6.2. WHERE SIGNIFICANT SECTIONS OF SANITARY SEWERS ARE PROVIDED WITH WATERTIGHT COVERS, EXTENDED VENTS WILL BE REQUIRED AT EVERY THIRD MAINTENANCE HOLE AS PER PEEL REGIONAL STANDARD DRAWING 2-5-22, SEE STANDARD, SHEET 18).

7. BEDDING AND COMPACTION

7.1. ALL SANITARY SEWER BEDDING AS PER REGION STD. DWG. 2-3-1 (REFER TO STANDARD ON SHEET 18).

7.2. GRANULAR BEDDING MATERIAL SHOULD CONSIST OF WELL GRADED, FREE DRAINING SOIL, SUCH AS OPSS GRANULAR 'A' OR 19mm CRUSHER RUN LIMESTONE OR ITS EQUIVALENT AS PER THE PERTINENT TOWN / REGION SPECIFICATIONS.

7.3. THE BEDDING MATERIALS SHOULD BE PLACED IN 150mm LIFTS AND COMPACTED TO A MINIMUM OF 100% SPMDD, SEE REGION OF PEEL STANDARD 2-3-1 (REFER TO STANDARD ON SHEET 18).

8. SANITARY SERVICES

8.1. IN INDUSTRIAL AREAS, THE MINIMUM SIZE OF SANITARY LATERALS SHALL BE 150mm, INSTALLED WITH A MINIMUM GRADE OF 1% AND A MAXIMUM GRADE OF 2%.

8.2. THE MINIMUM AND MAXIMUM COVER OF SANITARY LATERALS SHALL BE 2.00m AND 2.75m RESPECTIVELY, UNLESS CIRCUMSTANCES REQUIRE OTHERWISE.

8.3. THE MAXIMUM DROP ACROSS A PROPERTY LINE SHALL BE 0.03m.

8.4. A MAINTENANCE HOLE IS REQUIRED IF THE LATERAL DIAMETER IS EQUAL TO OR GREATER THAN HALF THE DIAMETER OF THE MAIN SEWER LINE. EXCEPT FOR A 150mm DIAMETER PIPE CONNECTING TO A 250mm DIAMETER MAINLINE OR A 200mm DIAMETER PIPE CONNECTING TO A 375mm MAINLINE.

STORM SEWERS:

1. GENERAL

1.1. STORM SEWER TO BE CONSTRUCTED IN ACCORDANCE WITH THE MOST RECENT REQUIREMENTS AND SPECIFICATIONS OF THE TOWN OF CALEDON.

1.2. STORM SEWERS SHALL BE PROVIDED ON ALL ROADS WITH CURB AND GUTTER.

1.3. RADIUS PIPE SHALL BE ALLOWED FOR STORM SEWERS 975mm IN DIAMTER AND LARGER PROVIDED THAT A MANHOLE IS LOCATED AT THE BEGINNING OR AT THE END OF THE RADIAL SECTION.

1.4. NO DECREASE OF PIPE SIZE FROM A LARGER UPSTREAM TO A SMALLER DOWNSTREAM WILL BE ALLOWED REGARDLESS OF THE INCREASE IN GRADE.

1.5. DEFORMATION GAUGE TEST (PIG) IS REQUIRED ON ALL PIPE WORKS PRIOR TO MAINTENANCE AND ACCEPTANCE. ALL PIPE WORKS SHALL HAVE A VIDEO TAPING COMPLETE AS PART OF THE PRELIMINARY AND ASSUMPTION INSPECTIONS. ALL SEWERS WILL BE FLUSHED PRIOR TO VIDEO INSPECTION.

1.6. MAINTENANCE HOLE TOPS (FRAMES) AND CATCHBASIN (FRAMES) ARE TO BE SET TO BASE COURSE ASPHALT AND THEN ADJUSTED FINAL GRADE WHEN THE TOP OF ASPHALT IS PLACED.

1.7. ALL CONNECTIONS TO THE STORM MAIN SHALL BE MADE WITH A STORM MANHOLE OR APPROVED FACTORY TEE CONNECTION AS PER OPSD 708.01 OR 708.03.

1.8. ALL PIPE HANDLING INSTRUCTIONS MUST BE IN STRICT COMPLIANCE WITH MANUFACTURERS INSTALLATION GUIDES.

1.9. THE MAXIMUM ALLOWABLE FLOW VELOCITY FOR CIRCULAR STORM SEWERS SHALL BE 4.0m/sec AND THE MINIMUM ALLOWABLE VELOCITY SHALL BE 0.75m/Sec.

1.10. STORM SEWERS TO HAVE A MINIMUM COVER OF 2.0m AS PER TOWN OF CALEDON STANDARD DRAWING No: 211.

2. SIZING

2.1. STORM SEWERS TO BE MINIMUM 300mm DIAMETER WITH JOINTS CONFORMING TO C.S.A. STANDARD A 257.3.

2.2. THE STORM SEWERS SHALL BE LOCATED AS SHOWN ON THE TOWN OF CALEDON STANDARD INDUSTRIAL ROAD CROSS SECTION NO 211 (SEE STANDARD ON SEE DETAIL, SHEET 16). THE STANDARD LOCATION IS GENERALLY 1.5m METERS FROM THE CENTER LINE OF ROAD.

3. DEPTH

3.1. MINIMUM HORIZONTAL SEPARATION BETWEEN SEWERS AND WATERMAINS SHALL BE 2.5m. VERTICAL CLEARANCE BETWEEN SEWERS AND WATERMAINS THAT CROSS TO BE 500mm BETWEEN THE OUTSIDE OF THE WATERMAIN AND OUTSIDE OF THE SEWER. THE LENGTH OF WATER PIPE SHOULD BE CENTERED AT THE POINT OF CROSSING SUCH THAT JOINTS IN THE WATERMAIN WILL BE EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE SEWER, CROSSING PERPENDICULAR IF POSSIBLE.

4. PIPE CLASSIFICATION, BEDDING AND COMPACTION

4.1. ALL STORM SEWER PIPES SHALL CONFORM TO THE REQUIREMENTS OF THE CANADIAN STANDARDS ASSOCIATIOIN (CSA).

4.2. GRANULAR BEDDING MATERIAL SHOULD CONSIST OF WELL GRADED, FREE DRAINING SOIL, SUCH AS OPSS GRANULAR 'A' OR 19mm CRUSHER RUN LIMESTONE OR ITS EQUIVALENT AS PER THE PERTINENT TOWN / REGION SPECIFICATIONS.

4.2. THE BEDDING MATERIALS SHOULD BE PLACED IN 150mm LIFTS AND COMPACTED TO A MINIMUM OF 95% SPMDD.

4.3. FOR ALL SEWERS AND WATERMAINS IN FILL SECTIONS, THE COMPACTION SHALL BE CERTIFIED BY A GEOTECHNICAL ENGINEER PRIOR TO LAYING OF PIPE.

4.4. STORM SEWERS SHALL BE CONSTRUCTED WITH BEDDING AS PER OPSD 802.030 FOR RIGID PIPE OR OPSD 802.010 WITH GRANULAR 'A' FOR FLEXIBLE PIPE UNLESS APPROVED OTHERWISE BY THE DIRECTOR.

4.5. PIPE MATERIAL TO BE REINFORCED CONCRETE SHALL BE CERTIFIED TO C.S.A. STANDARD A247.2-1982, CLASS 65-D OR PVC CERTIFIED C.S.A. STANDARDS 182.2 AND 182.4 MAX.

4.6. ALL PIPE BEDDING MUST CONFORM TO OPSD MAXIMUM COVER TABLE OPSD 807.010. NO FLEXIBLE PIPE SEWERS WILL BE INSTALLED WITH A DEPTH COVER GREATER THAN 6m UNLESS SPECIFICALLY APPROVED BY THE DIRECTOR.

4.7. SEWER BEDDING, COVER AND BACKFILL FOR FLEXIBLE PIPE TO BE AS PER OPSD 802.010 WITH GRANULAR "A" FOR BOTH THE BEDDING AND COVER. REFERENCE HOWEVER SHOULD BE MADE TO THE OPSD STANDARDS FOR ALTERNATE BEDDING AND BACKFILL SPECIFICATIONS AS DETERMINED BY THE PROPOSED PIPE MATERIAL AND EXCAVATION CONDITIONS.

5. MAINTENANCE HOLES

5.1. MANHOLES MAY BE EITHER PRECAST OR POURED IN PLACE AND SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE MOST RECENT ONTARIO PROVINCIAL STANDARD DRAWINGS SPECIFICATIONS.

5.2. MANHOLES SHALL BE LOCATED AT EACH CHANGE IN ALIGNMENT, GRADE OR PIPE MATERIAL, AT ALL PIPE JUNCTIONS, AT THE BEGINNING AND END OF RADIUS PIPE SELECTIONS AND AT INTERVALS ALONG THE PIPE TO PERMIT ENTRY FOR MAINTENANCE TO THE SEWER.

5.3. MAXIMUM SPACING OF MANHOLES SHALL BE 120m FOR SEWERS 600mm OR LEASS IN DIAMETER AND 150m FOR SEWERS 675mm OR GREATER IN DIAMETER.

5.4. MAINTENANCE HOLES SHALL BE 1200mm DIA. AND 1500mm DIA. AS PER OPSD 701.010 AND OPSD 701.011 (RESPECTIVELY). (SEE OPSD'S SHEET 19).

5.5. MANHOLE CHAMBER OPENINGS SHALL BE LOCATED ON THE SIDE OF THE MANHOLE PARALLEL TO THE FLOW FOR STRAIGHT RUN MANHOLES, OR ON THE UPSTREAM SIDE OF THE MANHOLE AT ALL JUNCTIONS.

5.6. CHANGE IN DIRECTION OF FLOW IN ANY MANHOLES SHALL NOT BE GREATER THAN 90 DEGREES PERPENDICULAR TO THE FLOW.

5.7. SAFETY GRATINGS SHALL BE PROVIDED IN ALL MANHOLES WHEN THE DEPTH OF THE MANHOLE EXCEEDS 5.0m. THE MAXIMUM SPACING BETWEEN SAFETY GRATINGS SHALL NOT EXCEED 4.5m, AS PER OPSD 404.020, (SEE OPSD, SHEET 19).

5.8. THE OBVERTS ON THE UPSTREAM SIDE OF THE MANHOLES SHALL NOT BE LOWER THAN THE OBVERT OF THE OUTLET PIPE.

5.9. WHERE THE DIFFERENCE IN ELEVATION BETWEEN THE OBVERT OF THE INLET AND OUTLET PIPES EXCEED 1.2m, A DROP PIPE AS INDICTATED ON OPSD 1003.010 SHALL BE PLACED ON THE INLET PIPE, (SEE OPSD, SHEET 18).

5.10. STORM SEWER MANHOLES SHALL BE BENCHED TO THE OBVERT OF THE OUTLET PIPE ON THE VERTICAL PROJECTION FROM THE SPRING LINE OF THE SEWER.

5.11. MANHOLES SHALL BE LOCATED, WHEREVER POSSIBLE, A MINIMUM OF 1.5m AWAY FROM THE FACE OF THE CURB AND/OR ANY OTHER SERVICE.

5.12. THE MINIMUM DROPS ACROSS MANHOLES SHALL BE AS FOLLOWS,

CHANGE IN DIRECTION	MINIMUM DROP (mm)
0°	30
1° TO 45°	50
45° TO 90°	80

6. CATCH BASINS

6.1. CATCH BASINS MAY BE EITHER PRECAST OR POURED AND SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE MOST RECENT OPSD AND OPSS REQUIREMENTS.

6.2. ROADWAY CATCH BASIN COVERS SHALL BE "BICYCLE PROOF" AS PER OPSD 400.010. CATCH BASINS WITH THE TRAVELLED PORTION OF A ROADWAY, SHALL HAVE THE FRAME ELEVATION FLUSH WITH THE SURFACE OF THE BASE COURSE ASPHALT. THE ADJUSTMENT AND SETTING OF THE FRAME AND COVER SHALL BE COMPLETED IN ACCORDANCE WITH THE DETAILS PROVIDED IN THE OPSD STANDARDS.

6.3. CATCH BASINS SHALL BE AS PER OPSD 701.010 (SEE OPSD, SHEET 19).

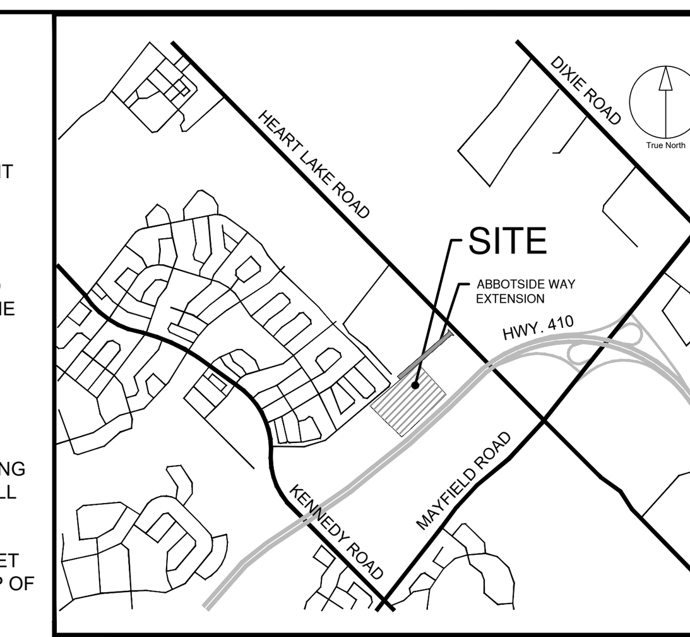
6.4. DUAL CATCH BASINS SHALL BE AS PER OPSD 705.020 (SEE OPSD, SHEET 19).

6.5. DITCH INLET CATCH SHALL BE AS PER OPSD 705.040 (SEE OPSD, SHEET 19).

6.6. ALL CATCH BASIN LATERALS SHALL BE PLACED AT 2% GRADE UNLESS OTHERWISE NOTED. PIPE SIZE MINIMUM 250mm DIAMETER SINGLE, 300mm DIAMETER DOUBLE.

6.7. MAXIMUM SPACING FOR CATCHBASINS SHALL BE AS FOLLOWS:

ROAD GRADE @ 0.75%	- 70 m
ROAD GRADE @ 0.75% to 3.0%	- 90 m
ROAD GRADE GREATER THAN 3%	- 70 m



KEY PLAN

LIST OF DRAWINGS

SITE PLAN INFORMATION

WARE MALCOMB
250 UNIVERSITY AVE, SUITE 235
TORONTO, ON. M5H 3E5
PHONE: (437) 537-5700
WEBSITE: www.waremalcomb.com

SURVEYOR INFORMATION

R-PE SURVEYING LTD.
ONTARIO LAND SURVEYORS
643 CHRISLEA ROAD, SUITE 7
WOODBRIDGE, ON. L4L 8A3
PHONE: (416) 635-5000
WEBSITE: www.r-pe.ca

BENCHMARK INFORMATION:
ELEVATIONS ARE GEODETIC AND ARE REFERRED TO MTO VERTICAL BENCHMARK NUMBER 0081999991 HAVING AN ORTHOMETRIC ELEVATION OF 265.112 METRES. ELEVATIONS ARE REFERENCED TO THE CANADIAN GEODETIC VERTICAL DATUM OF 1928, 1978 ADJUSTMENT (CGVD-1928:1978).

SCALE:

CLIENT

BROCCOLINI

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MISSISSAUGA, ON. L4W5L6

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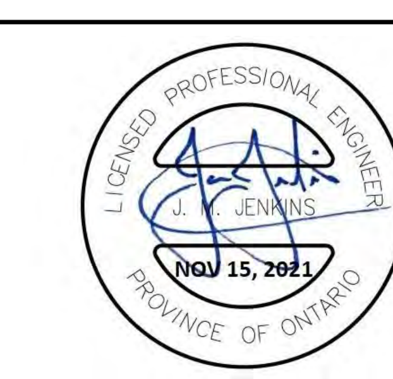
ISSUES

No.	DESCRIPTION	DATE
1	ISSUED FOR SPA SUBMISSION	NOV 15, 2021

LEGEND

SEAL



TOWN OF CALEDON

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PROJECT

12304 HEART LAKE ROAD

CALEDON, ON. L7C 2J2

PROJECT NO: 135636	
DRAWN BY: NDS	CHECKED BY: JJ
PROJECT MGR: JJ	APPROVED BY: JJ

SHEET TITLE

GENERAL NOTES AND DETAILS

SHEET NUMBER	ISSUE
DD-01	01